

6.9 CATTLE FEEDLOT OPERATIONS

6.9.1 Introduction

The Department regulates cattle feedlot operation that house and feed an average of 100 or more beef cattle per day during a calendar year.

6.9.2 Water Use by Cattle Feedlot Operations

In the Pinal AMA, there are currently 17 cattle feedlot operations, which hold Type 2 grandfathered rights totaling 5,740 acre-feet. In 1995, water use by cattle feedlots was 1,334 acre-feet of water, or slightly greater than 23 percent of their total annual allotments. Eight facilities accounted for almost all of this water use. Cattle feedlots use water for three purposes: livestock watering, dust control, and miscellaneous uses. The amount of water required for each of these purposes varies with the number of cattle processed by a facility. Livestock water use is usually measured in GAD, and cattle feedlots in the AMA have averaged 13 GAD. However, it appears that more stringent air quality regulations with respect to dust control may cause an increase in the water use. Growth in this subsector is expected to remain fairly static.

The only component of cattle feedlot water use having a significant conservation potential is dust control watering. Cattle feedlots control dust by applying water to the land surface using either a mobile tank and a large gun sprinkler, portable water lines with small nozzles, or a permanently installed sprinkler system. Each of these methods provides satisfactory dust control if water coverage is adequate and enough water is applied. If a permanent sprinkler system is installed, sprinkler heads should be selected and arranged to eliminate overspray, water application in excess of infiltration rates, and runoff. Overall management of the system is the most important factor in efficient dust control watering. Many cattle feedlots could conserve water by using proper management techniques for their dust control water systems. Proper management techniques include the removal of excess manure to less than two inches in depth and increasing the number of cattle per pen to increase pen moisture. Dust can also be controlled by surfacing roads between pens. All of these management practices reduce dust, thereby reducing the need to apply water.

Conservation potential also exists in the areas of landscape watering and water system losses. Because most cattle feedlot operations are already using a float control system, the latest available conservation technology for cattle drinking water systems, no significant water savings can be achieved in this area.

6.9.3 Program Development and Issues

Starting with the First Management Plan, cattle feedlot operations in the Pinal AMA were assigned a maximum annual water allotment based on reasonable daily maximum requirements for animal drinking, dust control, and miscellaneous water use needs. In addition, cattle feedlot operations were required to use specific conservation technologies during the first management period. This requirement was dropped for the second management period, and the Department only required that each facility comply with its maximum annual water allotment, which essentially remained unchanged from that in the First Management Plan.

6.9.4 Cattle Feedlot Operations Conservation Program

The conservation requirements for cattle feedlot operations for the third management period remain unchanged from those in the Second Management Plan. The conservation requirements for cattle feedlot operations in the Third Management Plan include a maximum annual water allotment for each facility based on the assumed use of specific conservation technologies. For the Second Management Plan, representatives from the cattle feedlot industry and cattle feedlot experts from the University of Arizona

College of Agriculture reviewed the equation used to determine the maximum annual water allotment for the first management period and verified that the equation allocates a reasonable amount of water.

The equation is based on the number of gallons of water reasonably required per animal per day. To determine this amount, three components of cattle feedlot water use were considered: (1) cattle drinking water requirements, (2) dust control watering requirements, and (3) other uses. The amount of water required for each component varies with the number of cattle processed by the feedlot. Cattle drinking water requirements include water intake, water spilled while drinking, and evaporation losses from watering tanks. Drinking water requirements are estimated to be 15 GAD. Dust control watering requires approximately 10 GAD. Other uses, including water used for feed mixing, health and environmental controls, system losses, and fire protection total 5 GAD. Total water requirements for a cattle feedlot operation are 30 GAD. These requirements are continued for the third management period.

6.9.5 Industrial Conservation Requirements and Monitoring and Reporting Requirements for Cattle Feedlot Operations

6-901. *Definitions*

In addition to the definitions set forth in Chapters 1 and 2 of Title 45 of the Arizona Revised Statutes, unless the context otherwise requires, the following words and phrases used in sections 6-902 through 6-903 of this chapter, shall have the following meanings:

- 1. "Beef cattle" means cattle or calves fed primarily for meat production.*
- 2. "Cattle feedlot operation" means a facility that houses and feeds an average of 100 or more beef cattle per day during a calendar year as calculated in section 6-902.*

6-902. *Maximum Annual Water Allotment Conservation Requirements*

A. *Maximum Annual Water Allotment*

Beginning on January 1, 2002 or upon commencement of water use, whichever is later, and continuing thereafter until the first compliance date for any substitute conservation requirement in the Fourth Management plan, an industrial user shall not withdraw, divert, or receive water for use at a cattle feedlot operation during a calendar year in a total amount that exceeds the cattle feedlot's maximum annual water allotment for the year as calculated in subsection B below.

B. *Calculation of Maximum Annual Water Allotment*

A cattle feedlot operation's maximum annual water allotment for a calendar year shall be determined as follows:

- 1. Calculate the average daily number of beef cattle present during the calendar year. The director shall calculate the average daily number of beef cattle present during the calendar year as follows:*
 - a. Determine the total number of beef cattle present at the cattle feedlot operation on the last day of each month during the calendar year.*
 - b. Add together the total number of beef cattle present at the cattle feedlot operation on the last day of each month during the year in question and then divide the result by 12. The quotient is the average daily number of beef cattle present at the cattle feedlot operation during the calendar year.*
- 2. Multiply the average daily number of beef cattle present at the cattle feedlot operation during the calendar year by a water allotment of 30 gallons per animal per day (GAD) and then convert to acre-feet per year as follows:*

$$C_B \times \frac{30 \text{ GAD}}{325,851 \text{ g/acre-foot}} \times \text{d/yr} = \text{Maximum annual water allotment for the cattle feedlot operation (acre-feet/year)}$$

Where: C_B = Average daily number of beef cattle
 GAD = Gallons per animal per day
 g/acre-foot = Gallons per acre-foot
 d/yr = Days in the year

C. Compliance with Maximum Annual Water Allotment

An industrial user who uses water at a cattle feedlot operation is in compliance for a calendar year with the cattle feedlot operation's maximum annual water allotment if the director determines that either of the following applies:

- 1. The volume of water withdrawn, diverted, or received during the calendar year for use at the cattle feedlot operation is equal to or less than the cattle feedlot operation's maximum annual water allotment for the calendar year; or*
- 2. The three-year average volume of water withdrawn, diverted, or received for use at the cattle feedlot operation during that calendar year and the preceding two calendar years is equal to or less than the cattle feedlot operation's three-year average maximum annual water allotment for that calendar year and the preceding two calendar years.*

- D.** *Nothing in this section shall be construed to authorize a person to use more water from any source than the person is entitled to use pursuant to a groundwater or appropriable water right or permit held by the person. Nor shall this section be construed to authorize a person to use water from any source, including effluent, in a manner that violates Chapter 1 or Chapter 2 of Title 45, Arizona Revised Statutes.*

6-903. Monitoring and Reporting Requirements

For calendar year 2002 or the calendar year in which water use is first commenced at the cattle feedlot operation, whichever occurs later, and for each calendar year thereafter until the first compliance date for any substitute monitoring and reporting requirements in the Fourth Management Plan, an industrial user who uses water at a dairy operation shall include the following information in its annual report required by A.R.S. § 45-632:

- 1. The total quantity of water from any source, including effluent, withdrawn, diverted, or received during the calendar year for use at the cattle feedlot operation as measured with a measuring device in accordance with the Department's measuring device rules, A.A.C. R12-15-901, et seq.*
- 2. The total number of beef cattle which were present on-site at the cattle feedlot operation on the last day of each month during the calendar year.*